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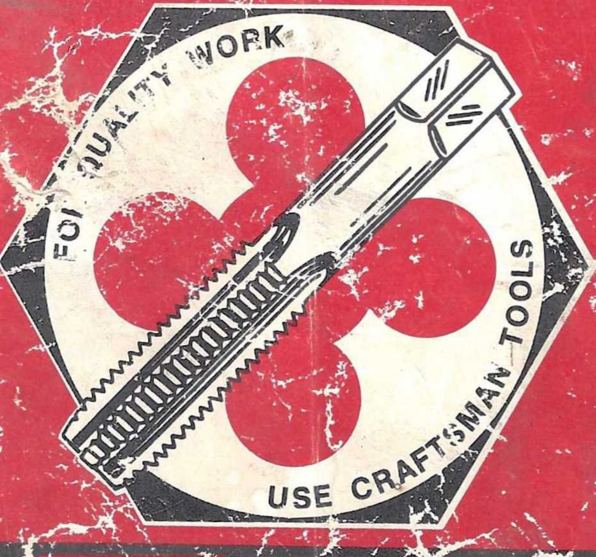
9 5471

Sears **CRAFTSMAN®**

HANDBOOK OF TAPS, DIES AND THREADING ACCESSORIES



For Heli Coil Installation

Sears **CRAFTSMAN METRIC®**

Sears CRAFTSMAN®

FULL UNLIMITED WARRANTY ON CRAFTSMAN TAP AND DIE SETS

If this Craftsman Tap and Die Set ever fails to give complete satisfaction, RETURN IT TO THE NEAREST SEARS STORE IN THE UNITED STATES, and Sears will replace it, free of charge.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

The operation of any cutting tool can result in foreign objects being thrown into the eyes, which can result in severe eye damage. Always wear safety glasses or eye shields before commencing cutting tool operation. We recommend Wide Vision Safety Mask for use over spectacles, or standard safety glasses . . . available at Sears retail or catalog stores.

For replacement taps and dies, other than High Speed Steel, see Sears Power and Hand Tool Catalog. For High Speed Steel replacement taps and dies, see Sears Service Dept.

SEARS, ROEBUCK AND CO., Sears Tower, BSC 41-3, Chicago, IL 60684

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DESIGNATION OF TAPS AND DIES

CRAFTSMAN THREAD CUTTING TOOLS

Craftsman taps and dies are precision tools made to the specifications prescribed by the Tap and Die Division of the Metal Cutting Institute. They are manufactured to "cut thread" tolerances to give Class II threads on completed threaded parts. They are manufactured from the highest quality tool steels, properly heat treated and tempered to assure you of the highest quality thread cutting tools.

Kromedge is the Sears registered trade mark for tools that have a hard chrome finish. This finish reduces friction and provides smooth, long lasting, cutting action. Other noticeable benefits of Kromedge are resistance to tarnish and corrosion.

Craftsman High Speed Steel Taps and Dies are double tempered and "Black Oxide" coated. The Black Oxide coating reduces friction, gives smooth cutting action and longer life. Craftsman Taps and Dies are precision tools, and should be carefully protected at all times to insure long life and satisfactory operation.

American Standard Taps and Dies are designated according to the Metal Cutting Institute Standard System of Marking as follows:

- —Nominal size such as a fraction or number representing the major diameter of the thread.
- —Number of threads per inch.
- —Symbol to identify the thread types.

The three thread types sold by Sears are:

N.C. — National Coarse and sometimes referred to as (U.S.S.) United States Standard.

N.F. — National Fine and sometimes referred to as (S.A.E.) Society of Automotive Engineering.

N.P.T. — National Pipe Taper

Example:

Size or Diameter	Threads per inch	Symbol
1/4"	20	NC
10	32	NF
1/8"	27	N.P.T.

Metric Taps and Dies are designated as follows:

- — A number representing the major diameter of the thread.
- — The symbol MM indicating metric.
- — A number which is the pitch (or distance from the crest of one thread to crest of the next thread) of the thread in millimeters.

Example:

Size or Diameter	Symbol	Pitch
4	MM	.70
8	MM	1.25
*1/8"	B.S.P.	28

*Pipe taps in Craftsman sets are designated similar to National Pipe Threads: Diameter, threads per inch, and symbol B.S.P. (British Standard Pipe).

The most widely used tap is the general purpose plug tap provided with a 3 to 5 thread chamfer. As sold by Sears, these taps are designed with the correct cutting edges to produce accurate threads in most materials. They are available in the coarse (NC) fine (NF) and metric (M) series.

Taper pipe taps are designed and used for producing threads in pipe fittings, although there are numerous other applica-

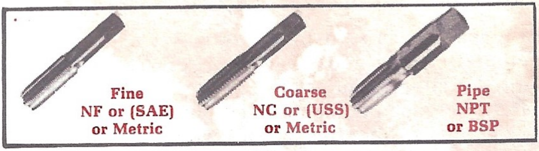


Fig. 1

tions. The chief characteristic is the tapered thread which is necessary to secure tight joints in pipe fittings.

WHAT A TAP IS — WHAT A TAP DOES

A tap is a precision tool used in the cutting of an internal thread such as in a nut (Fig. 3): Just as a drill removes material to make a hole, a tap cuts material away to form a thread.

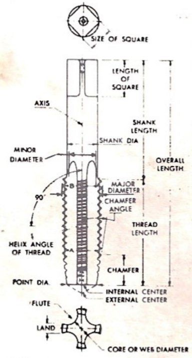


Fig. 2

Fig. 3

Craftsman taps are called "plug" taps and perform about 95% of all tapping jobs.

There are three basic types of hand taps: i.e., "taper", "plug", and "bottom" taps. The difference in these is the length of the chamfer (see Fig. 2) on the starting end of the tap. "Taper" taps are chamfered for the first 6-8 threads. This makes starting easier but prevents threading close to the bottom of a hole. "Plug" taps are chamfered 3-5 threads from the end. This is the optimum for starting and being able to tap close to the bottom of a hole. "Bottoming" taps have a very short chamfer, 1½ to 3 threads, and will tap as close to the bottom of a hole as practical; however, to do this requires starting the thread with a plug or taper tap first.

HOW TO USE A TAP

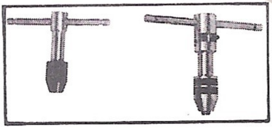


Fig. 4

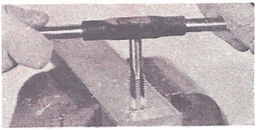


Fig. 5

TOOLS REQUIRED TO MAKE A THREADED HOLE

A Tap of the correct size and thread form, a Tap Wrench, proper drill size or hole size, and lubricating or cutting oil.

For general work the #0 Tap and Reamer Wrench is used on tap sizes #4 through ¼", and 3MM through 6MM, the #4 Wrench on sizes #4 through ½", and 3MM through 12MM, the #6 Wrench on sizes #10 through ¾", and 6MM through 18MM, the #7 Wrench ¼" through 1⅛", and 6MM through 24MM. For small size taps and in confined areas, the "T" handle (Fig. 4) wrench is used.

imp

The correct drill or hole size is of great importance in producing satisfactory threads. The Tap Drill Chart inside the back cover provides a ready reference table of the correct drill sizes. Use of a smaller drill than specified does not provide a stronger or tighter thread. It only serves to overload the tap and cause undue breakage. Lubrication of the tap while cutting threads is important in producing smooth threads and maintaining long tap life. Refer to the lubrication section of this booklet for recommendations.

RENEWING THREADS

Damaged, mutilated, or rusty threads are easily repaired. First check the part for correct thread size and select the proper tap. Next carefully start the tap into the pre-threaded hole and proceed in the same manner as when cutting new threads. Some materials are case hardened and if a tap is forced into work of this type, damage to the tap will result. A simple file test will determine whether or not to proceed. If material can not be easily filed, do not attempt to rethread it.

HOW TO USE A TAP

CUTTING INTERNAL THREADS

The tap is held by the square in a tap wrench and is started into the hole by turning clockwise for right hand threads. Care must be taken to start the tap straight in line with the hole (See Fig. 5). As the tap is turned it cuts into the metal and starts to lead into the hole. The metal chips flow into the flute spaces and will cause the tap to turn hard unless the chips are broken. The chips are broken and pressure on the tap is released by reversing the tap direction every ¼ or ½ a revolution depending on the material being tapped. This action is continued until the tap passes through the part or the desired depth of thread has been reached. In cases where it is necessary to tap a hole that does not pass through the part, or a so called blind hole, be sure to provide clearance at the bottom to accommodate chips and the chamfer section of the tap.

WHEN USING TAPS

DO Drill correct size hole (see chart inside back cover)
DO Countersink hole before tapping.
DO Keep tap straight in line with the hole being tapped.
DO Reverse tap during use to break up chips.
DO Use correct lubrication (follow recommendations on page 12).
DO Provide rigid holding of part being tapped.

The operation of any cutting tool can result in foreign objects being thrown into the eyes, which can result in severe eye damage. Always wear safety glasses or eye shields before starting cutting tool operation. We recommend Wide Vision Safety Mask for use over spectacles, or standard safety glasses . . . available from Sears retail stores or catalog.

DON'T Use too small a tap drill.
DON'T Crowd tap—Tap should be turned backwards slightly every ¼ to ½ turn to clear chips from tap flutes.
DON'T Fail to clean tap before storage.

MAINTENANCE

The importance of using a sharp tap cannot be over emphasized. (See Fig. 6 for reference.) As taps require precision sharpening equipment, it is recommended that dull or damaged tools be replaced from Sears retail stores or from catalog.

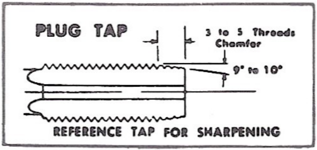


Fig. 6

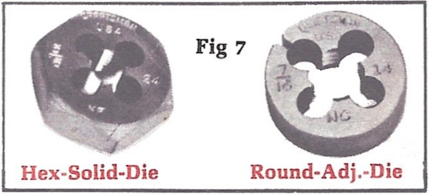


Fig 7

Hex-Solid-Die

Round-Adj.-Die

Sears supplies threading dies in 2 styles. Hex Solid Dies, and Round Adjustable Dies.

Hex Solid Dies are designed with the correct cutting edges to cut standard size threads on bolts, studs and rods. The Hex dies are capable of being used with open end or box wrenches. The Hex will also fit the six or twelve point sockets to permit the use of the dies in limited access areas. A die stock to accommodate the Hex dies is included in the Hex sets.

Round Adjustable Dies are for cutting the same standard sizes of threads. The dies are designed with a slot to allow a limited adjustment to cut slightly oversize or undersize threads when desired.

WHAT IS A DIE?

A die is a precision tool used in cutting external or outside threads.

WHAT DOES IT DO?

Dies cut external threads such as on a bolt. (See Fig. 9)

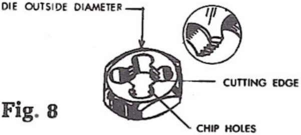


Fig. 8

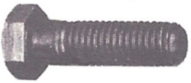


Fig. 9

HOW TO USE A DIE

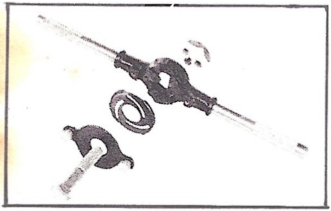


Fig. 10

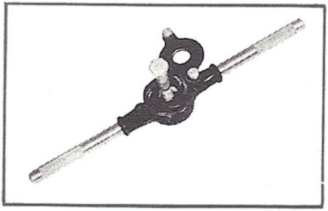


Fig. 11

TOOLS REQUIRED TO CUT AN EXTERNAL THREAD

A die of the correct size and thread form, a die stock to hold the die, and lubricating or cutting oil are needed. Die stocks are provided in four sizes to accommodate either the 1" O.D. dies (both Hex and round) and the 1½" O.D. round and 1-7/16", 13/16" and 1⅞" Hex dies.

After selecting the proper die, position and hold in the die stock, with the starting side next to the guide, by means of a set screw which tightens against the edge of the die. See Fig. 8.) Next place the adjustable guide side of the die stock on the rod or bolt to be threaded. (See Figs. 10-11.)

The 13/16" and 1⅞" Hex die stocks do not have adjustable guides.

With the rod or bolt in position, adjust the guides by turning the chuck plate counter clockwise until guides touch the rod or bolt. Clamp plate is then held in place by tightening the two knurled screws. The adjustable guides properly set insure cutting straight threads

CUTTING EXTERNAL THREADS

Rigidly secure the correct size rod or bolt, preferably .005 to .010 undersize and beveled for ease in starting, and turn the die clockwise. As the die starts to cut, chips will flow and should be broken by reversing every 1/4 to 1/2 turn. Periodic application of cutting oil will help in cutting smooth threads and in prolonged die life. Continue the forward and reversing action until the desired length of thread has been cut.

RENEWING THREADS

Damaged threads are readily repaired by proceeding as for cutting new threads. Care should be taken to start the die in the previously formed thread. (See Fig. 12.)

The limited adjustment built into the split adjustable die is invaluable in renewing threads. It must be noted that the adjustment is limited to producing either a tighter thread fit or looser thread fit in the nut or mating part. The dies are not for reducing, for example, a 9/32" thread to a 1/4" thread. Always check to be sure the bolt or bar has not been hardened.

Hex dies are not adjustable, and are made to cut correct thread size.

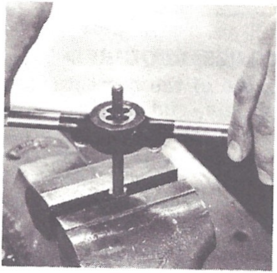


Fig. 12

DO'S AND DON'TS TO REMEMBER WHEN USING DIES

DO Select the right size die.

DO Keep die at right angle to work piece.

DO Use correct lubrication. Follow recommendations on page 12.

DO Chamfer or bevel end of work before threading.

DO Clean and store dies in proper spaces after use.

The operation of any cutting tool can result in foreign objects being thrown into the eyes, which can result in severe eye damage. Always wear safety glasses or eye shields before commencing cutting tool operation. We recommend Wide Vision Safety Mask for use over spectacles, or standard safety glasses . . . available from Sears retail stores or catalog.

DON'T Crowd die — Die should be turned backwards slightly every 1/4 to 1/2 turn to clear chips from die.

DON'T Jam the die against the head or shoulder when threading close.

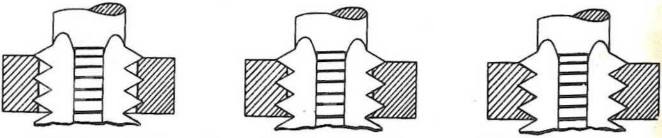
MAINTENANCE OF A DIE

The importance of using sharp dies cannot be overemphasized. As dies require precision sharpening equipment, it is recommended that dull or damaged tools be replaced from Sears stores or catalog. Prompt replacement assures you that your set is complete and ready for use at all times.

EFFECT OF HOLE OR BOLT SIZE ON HEIGHT OF THREAD

When cutting threads, if the tap or die cuts away metal the full form or depth of the thread, the result is 100% height of thread on the work. Therefore, the height of thread is determined by the size of the drilled hole for tapping, or the size of bolt or rod when using a die. If the size of the hole is the same size as the minor diameter of the tap, the thread produced would be 100% height.

When the hole is larger than the minor diameter of the tap, or the size of the bolt or rod is less than the major diameter of the die, the height of the thread cut will be less than 100%. Thus, to vary the height of thread, one must vary the size of the drilled hole or size of the bolt or rod.



50% Thread
May be too shallow

75% Thread
For Average Conditions

100% Thread
Only 5% Stronger than 75%, yet takes 3 times the power to turn the tap or die

Fig. 13

As shown in Fig. 13, a 100% thread is only 5% stronger than a 75% thread height, but requires 3 times the power to turn the tap. A 100% thread height does not give a tighter fit. It only serves to overload the tools and possibly cause premature tool failure.

The recommended thread height is 75% for average use and the Tap Drill Reference Chart gives the correct drill size for each size tap. One should also remember in preparing bolts or rods for cutting of the external thread, that diameter of the bolt or rod should be from .005 to .010 under the nominal size.

The thread gauge will help in determining the correct number of threads per inch on a bolt or nut, or pitch on metric sizes. The gauge (Fig. 14) is provided with blade's each marked with a number corresponding to the threads per inch or pitch. For example: "16" on the blade means 16 threads per inch. The part is checked by placing the correct blade in such a manner that all teeth or notches align properly with the threads on the bolt or nut. (See Fig. 15 and 16.) As a substitute for a thread gauge, a tap may be used in the same manner as described above. (See Fig. 17.)

The bolt diameter is established by measuring the outside diameter with micrometers. Normally bolts are manufactured with the diameter slightly under the nominal size. For example; a 5/16" bolt will probably measure .305 instead of .3125 when measured in this manner .

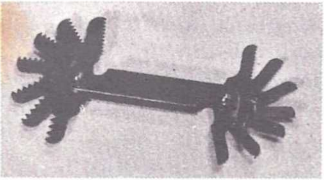


Fig. 14

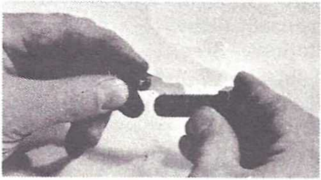


Fig. 15

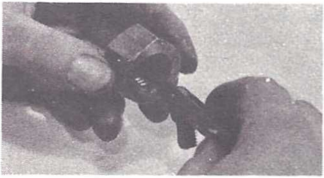


Fig. 16

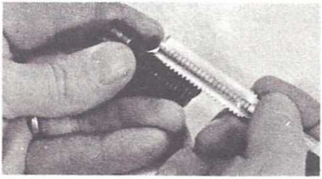


Fig. 17

LUBRICATION ◦

Selection and application of tne proper lubricant has a very important bearing on the successful thread cutting operation. Longer tap and die life plus smoother, cleaner, and more accurately formed threads will be the benefits. Once the proper lubricant has been selected, it should be directed, with an oil can, brush, or other convenient method, to the cutting edges (during the threading operation). Recommended lubricants, most readily available for the home work shop use, are listed with the materials to be threaded.

Steel	Lard oil, cutting oil or Crisco ®
Cast Iron	Dry or air blast
Aluminum	Kerosene or Kerosene lightly mixed with lard oil
Brass	Kerosene
Magnesium	Kerosene
Zinc	Kerosene
Bakelite	Dry
Hard Rubber	Dry
Bronze	Kerosene or Kerosene mixed with lard oil
Stainless Steel	Kerosene mixed with lard oil

Additional lubricants for production or industrial uses may be obtained by consulting commercial distributors of oils and greases.

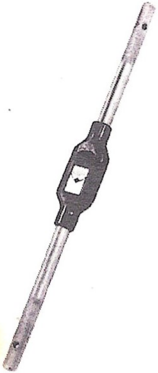
9 52029

Metric Screw Pitch Gauge, contains 14 pitches, 0.45, 0.5, 0.6, 0.7, 0.75, 0.8, 0.9, 1.0, 1.25, 1.5, 1.75, 2.0, 2.5 MM and 28 BSP.

9 52229

American Standard Screw Pitch Gauge. Contains 14 pitches, 40, 36, 32, 28, 27, 24, 20, 18, 16, 14, 13, 12, 11, and 10 threads per inch.

CRAFTSMAN TAP & DIE ACCESSORIES



9 52138

#0 Tap and Reamer Wrench with hardened steel jaws for tap sizes #4 through ¼", and 3MM through 6MM Metric. Knurled steel handles provide simple opening and closing action of the jaws.

9 5214

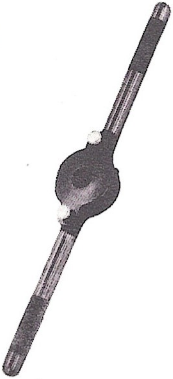
#4 Tap and Reamer Wrench. Same as 9 52138 except for taps #4 through ½", and 3MM through 12MM Metric.

9 52141

#6 Tap and Reamer Wrench. Same as 9 52138 except for taps ¼" through ¾", and 6MM through 18MM Metric.

9 52142

#7 Tap and Reamer Wrench. Same as 9 52138 except for taps ¼" through 1⅛", and 6MM through 24MM Metric.



9 52181

Adjustable Guide Die Stock for use with 1½" round adjustable dies and 1-7/16" Hex Dies. Easily adjustable guides for stock being threaded.

9 52182

Adjustable Guide Die Stock. Same as 9 52181 except for 1" Round Adjustable Dies.

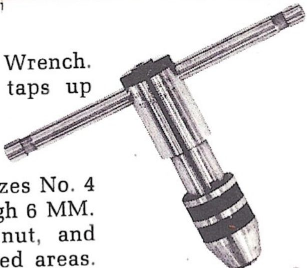
9 52183

Die Stock for 1-7/8" Hexagon Dies. Does not have adjustable guides.

9 52185

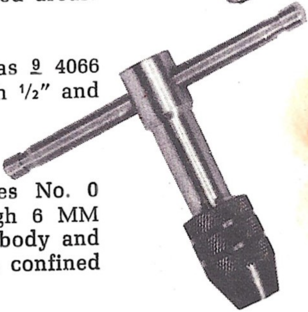
Adjustable Guide Die Stock. Same as 9 52181 except for 1" Hexagon Dies.

CRAFTSMAN KROMEDGE® TAP & DIE SETS



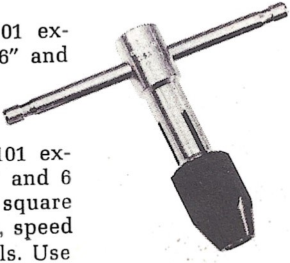
9 4065
Adjustable Ratchet T-Handle Tap Wrench. Self equalizing jaws adjust to taps up through 5/16″ and 8 MM.

9 4066
T-Handle Tap Wrench for tap sizes No. 4 through No. 14 and 3 MM through 6 MM. Steel jaws, knurled adjusting nut, and sliding handle for use in confined areas.



9 4067
T-Handle Tap Wrench. Same as 9 4066 except for tap sizes 1/4″ through 1/2″ and 6 MM through 12 MM.

9 42101
T-Handle Wrench for tap sizes No. 0 through 1/4″ and 3 MM through 6 MM Hexagon adjusting nut, plated body and slip type handle for tapping in confined areas.



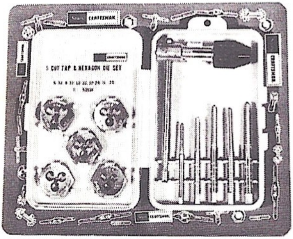
9 42102
T-Handle Wrench. Same as 9 42101 except for tap sizes #12 through 5/16″ and 5 MM through 8 MM.

9 42103
T-Handle Wrench. Same as 9 42101 except for tap sizes 1/4″ through 1/2″ and 6 MM through 12 MM. Body has 3/8″ square female drive for use with ratchets, speed wrenches, and other 3/8″ drive tools. Use with 1/4″ to 3/8″ reamers.

CRAFTSMAN KROMEDGE® TAP & DIE SETS

9 5217

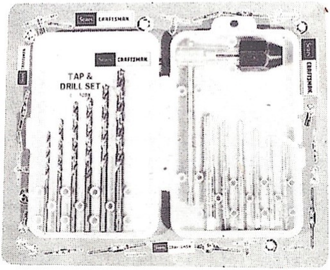
Tap driver set includes 1 tap driver and 3 American Standard Kromedge taps: sizes 6-32, 8-32, 10-24. Driver has hollow handle for convenient storage of taps when not in use. Comfortable plastic handle for ease and convenient use in restricted space.



9 52118

12 Piece Tap and Die Set.
(5 cutting sizes)

Set includes 5 Kromedge taps and dies. All dies are 13/16 inch Hex for use with open end or socket wrenches. Sizes include one each tap and die for machine screw sizes: 6-32, 8-32, 10-32, 10-24, ¼-20, and "T" handle tap wrench. Packed in handy pocket size plastic case.



9 5208

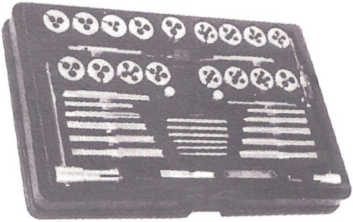
14 Piece Electricians Tap and Drill Set.

Set includes 6 Kromedge machine screw taps, 6 High Speed drills of the correct size for each tap, and "T" handle tap wrench.

Tap sizes included: 4-40, 6-32, 8-32, 10-32, 10-24, ¼-20. Drill sizes included: 43, 36, 29, 25, 21, 7.

Packed in handy pocket size plastic case.

CRAFTSMAN KROMEDGE® TAP & DIE SETS



9 5209

41 Piece Set (17 cutting sizes)

Set includes 17 taps, 16 (1 inch) O.D. round adjustable dies, 1 solid (1 inch) O.D. pipe die. Sizes include one each Kromedge tap and die for machine screw sizes: 4-40, 6-32, 8-32, 10-32, 10-24 and 12-24. National Coarse (N.C.) fractional sizes: ¼-20, 5/16-18, ⅜-16, 7/16-14, ½-13. National Fine (N.F.) fractional sizes: ¼-28, 5/16-24, ⅜-24, 7/16-20, ½-20. Pipe (N.P.T.) size ⅛-27.

Accessories include adjustable guide (1 inch O.D.) die stock, "T" handle tap and reamer wrench for small taps, No. 42103 "T" Handle Tap and Reamer Wrench, No. 4 adjustable tap wrench, screw pitch gauge and screw driver. Packed in strong plastic set box with individual compartments. Instruction book included.

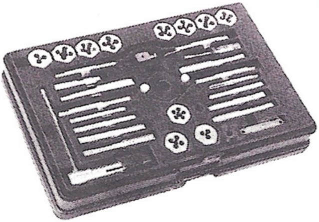
9 52052

20 Piece Set (10 taps — 6 dies)

Set includes 10 taps and 6 one inch Hex dies. Sizes include one each die, sizes ¼-20, ¼-28, 5/16-18, 5/16-24, ⅜-16 and ⅜-24. The most popular sizes for the home owner, and do-it-yourselfer. Set includes 1 each tap, sizes 6-32, 8-32, 10-24, 10-32, ¼-20, ¼-28, 5/16-18, 5/16-24, ⅜-16 and ⅜-24.

Accessories include 1" Hexagon Die Stock, "T" Handle Tap and Reamer Wrench, and Tap Driver for use in die stock for taps ¼" through ½" thread sizes. Packed in molded plastic case with individual compartments.

CRAFTSMAN KROMEDGE® TAP & DIE SETS

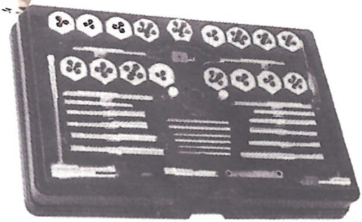


9 5200

28 Piece Set (11 cutting sizes)

Set includes 11 taps, 11 1 inch Hex dies. Sizes include, 1 each Kromedge tap and die for National Course (N.C.) fractional sizes: ¼-20, 5/16-18, ⅜-16, 7/16-14, ½-13. National Fine (N.F.) fractional sizes: ¼-28, 5/16-24, ⅜-24, 7/16-20, ½-20. Pipe (N.P.T.) size ⅛-27.

Accessories include, adjustable guide die stock for 1″ Hex dies, No. 4 adjustable tap wrench, "T" handle tap and reamer wrench, screw pitch gauge and screw driver. Packed in strong plastic set box with individual compartments. Instruction booklet included.



9 5201

41 Piece Set (17 cutting sizes)

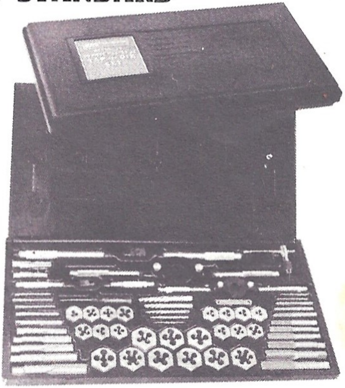
The ideal auto mechanics set. The Hex dies fit 1 inch socket wrench for threading in confined areas.

Set includes 17 taps and 17 1 inch Hex dies. Sizes include: one each Kromedge tap and die for machine screw sizes: 4-40, 6-32, 8-32, 10-32, 10-24, 12-24. National Coarse (N.C.) fractional sizes ¼-20, 5/16-18, ⅜-16, 7/16-14, ½-13; National Fine (N.F.) fractional sizes ¼-28, 5/16-24, ⅜-24, 7/16-20, ½-20. Pipe (N.P.T. ⅛-27.

Accessories include, adjustable guide die stock for 1″ Hex dies, No. 4 adjustable tap wrench, screw pitch gauge, screw driver, and two "T" handle tap and reamer wrenches. Packed in strong plastic set box with individual compartments. Instruction booklet included.

CRAFTSMAN KROMEDGE® TAP & DIE SETS

AMERICAN STANDARD



SEARS FINEST
CRAFTSMAN®
KROMEDGE®
AMERICAN STANDARD
TAP AND DIE SET

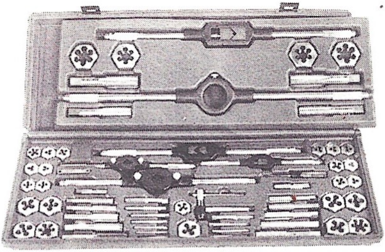
9 52151

59 Piece Set (23 cutting sizes) Set includes 23 taps, 14 1" Hex dies, 9 1-7/16 Hex dies. Sizes include one each Kromedge tap and die for Machine Screw sizes: 6-32, 8-32, 10-32, 10-24, 12-24; National Coarse (N.C.) fractional sizes: ¼-20, 5/16-18, ⅜-16, 7/16-14, ½-13, 9/16-12, ⅝-11, ¾-10; National Fine (N.F.) fractional sizes: ¼-28, 5/16-24, ⅜-24, 7/16-20, ½-20, 9/16-18, ⅝-18, ¾-16, and Pipe (N.P.T.) sizes ⅛-27 and ¼-18.

Screw extractors in sizes: No. 1-2-3-4-5.

Accessories include adjustable guide die stock for 1" Hex dies, 1-7/16" Hex adjustable die stock, "T" handle tap and reamer wrench for small taps, No. 4 adjustable tap wrench for taps ¼" through ½", No. 6 adjustable tap wrench for taps ½" through ¾", screw pitch gauge and screw driver. Set is packed in a high density polyethylene case. Instruction booklet is included.

SEARS FINEST CRAFTSMAN® KROMEDGE® STANDARD TAP AND DIE SET FOR THE COMPLETE REPAIR AND MACHINE SHOP



9 52161

66 Piece Set (28 cutting sizes)

Set includes 28 taps, 15 1″ Hex dies, 9 1-7/16″ Hex dies, 4 1⅞″ Hex dies. Sizes include one each Kromedge tap and die for machine screw sizes: 4-40, 6-32, 8-32, 10-32, 10-24, 12-24; National Coarse (N.C.) Fractional sizes: ¼-20, 5/16-18, ⅜-16, 7/16-14, ½-13, 9/16-12, ⅝-11, ¾-10, ⅞-9, 1″-8; National Fine (N.F.) Fractional sizes: ¼-28, 5/16-24, ⅜-24, 7/16-20, ½-20, 9/16-18, ⅝-18, ¾-16, ⅞-14, 1-12, and Pipe (N.P.T.) sizes ⅛-27 and ¼-18.

Accessories include Adjustable Guide Die Stock for 1″ Hex dies, Adjustable Guide Die Stock for 1-7/16″ Hex dies, die stock for 1⅞″ Hex dies, "T" handle tap and reamer wrench for small taps, No. 4 tap and reamer wrench for taps ¼″ through ½″, No. 6 tap and reamer wrench for taps ½″ through ¾″, No. 7 tap and reamer wrench for taps ½″ through 1⅛″, American Standard screw pitch gauge and screwdriver. Packed in strong plastic case with compartments. Instruction booklet and tap-drill card included.

CRAFTSMAN HIGH SPEED TAP & DIE SETS

AMERICAN STANDARD

SEARS FINEST CRAFTSMAN® AMERICAN STANDARD TAP AND DIE SET MADE OF HIGH SPEED STEEL FOR DURABILITY

9 52311

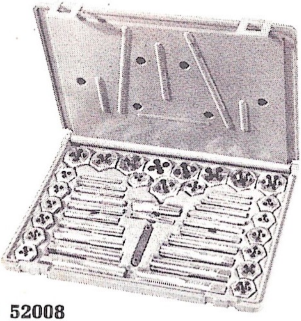
59 Piece Set (23 cutting sizes) Set includes 23 taps, 14 1″ Hex dies, 9 1-7/16″ Hex dies. Sizes include one each tap and die for Machine Screw sizes: 6-32, 8-32, 10-32, 10-24, 12-24. National Coarse (N.C.) fractional sizes: ¼-20, 5/16-18, ⅜-16, 7/16-14, ½-13, 9/16-12, ⅝-11, ¾-10; National Fine (N.F.) fractional sizes: ¼-28, 5/16-24, ⅜-24, 7/16-20, ½-20, 9/16-18, ⅝-18, ¾-16, and Pipe (N.P.T.) sizes ⅛-27 and ¼-18.

Screw extractors in sizes: No. 1-2-3-4-5.

Accessories include 1″ adjustable guide die stock for Hex dies, 1-7/16″ Hex adjustable guide die stock, "T" handle tap and reamer wrench for small taps, No. 4 adjustable tap wrench for taps ¼″ through ½″, No. 6 adjustable tap wrench for taps ½″ through ¾″, screw pitch gauge and screw driver. Set is packed in a high density polyethylene case. Instruction booklet is included.

CRAFTSMAN KROMEDGE® TAP & DIE SETS

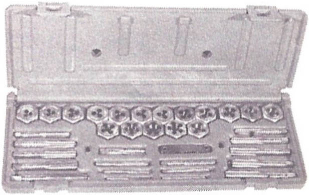
METRIC ADD-ON SETS FOR THE PERSON WHO HAS A STANDARD SET AND DOESN'T NEED WRENCHES.



9 52008

48 Piece Metric Add-On Set

Set includes 23 Metric Taps, 14 — 1" Hex Dies and 9 1-7/16" Hex Dies. Thread sizes include one each tap and die for Metric threads, 3.5MM-.60, 4MM-.70, 4.5MM-.75, 5MM-.80, 6MM-1.00, 6.3MM-1.00, 7MM-1.00, 8MM-1.00, 8MM-1.25, 9MM-1.25, 10MM-1.00, 10MM-1.25, 10MM-1.50, 12MM-1.50, 12MM-1.75, 14MM-1.25, 14MM-2.00, 16MM-1.50, 18MM-1.50, 18MM-2.50, ⅛" B.S.P. and ¼" B.S.P. Included is Metric Screw Pitch Gauge. Packaged in strong plastic case with individual compartments. Instruction booklet included.

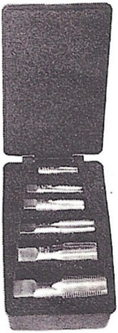


9 52102

36 Piece Metric Add-On Set

Set includes 17 Metric Taps and 17 Metric 1" Hex Dies. Thread sizes include 3MM-.50, 3.5MM-.60, 4MM-.70, 4.5MM-.75, 5MM-.80, 6MM-1.00, 6.3MM-1.00, 7MM-1.00, 8MM-1.00, 8MM-1.25, 9MM-1.25, 10MM-1.00, 10MM-1.25, 10MM-1.50, 12MM-1.5, 12MM-1.75, and ⅛" B.S.P. Included is Metric Screw Pitch Gauge. Packaged in strong plastic case with individual compartments. Instruction booklet included.

METRIC ADD-ON SETS FOR THE PERSON WHO HAS A STANDARD SET AND DOESN'T NEED WRENCHES.



9 52007

24 Piece Metric Add-On Set

Set includes 11 Metric Taps and 11 — 1" Hex Dies. Thread sizes include 6MM-1.00, 6.3MM-1.00, 7MM-1.00, 8MM-1.00, 8MM-1.25, 9MM-1.25, 10MM-1.25, 10MM-1.50, 12MM-1.50, 12MM-1.75 and 1/8" B.S.P. Included is Metric Screw Pitch Gauge. Packaged in strong plastic case with individual compartments. Instruction booklet included.

9 52009

7 Piece Standard Taper Pipe Tap Set

Set includes 6 each Standard Taper Pipe Taps in sizes 1/8"-27, 1/4"-18, 3/8"-18, 1/2"-14, 3/4"-14, and 1" — 11 1/2 threads per inch. Packaged in molded plastic case with individual compartments.

CRAFTSMAN KROMEDGE® TAP & DIE SETS

AMERICAN STANDARD — METRIC

COMBINED AMERICAN STANDARD AND METRIC THREADING TOOL SET FOR THE REPAIR AND MAINTENANCE MECHANICS

9 52131

76 Piece Set (34 cutting sizes) Set includes 17 American Standard taps, 17 one inch American Standard Hex dies, 17 Metric taps, and 17 one inch Hex Metric dies. American Standard sizes include Machine Screw sizes: 4-40, 6-32, 8-32, 10-32, 10-24, 12-24; National Coarse (N.C.) fractional sizes ¼-20, 5/16-18, ⅜-16, 7/16-14, ½-20; Pipe (N.P.T.) size ⅛-27. Metric sizes include:3MM-.50, 3MM-.60, 4MM-.70, 4MM-.75; 5MM-.80, 5MM-.90, 6MM-1.00, 7MM-1.00, 8MM-1.25, 9MM-1.00, 9MM-1.25, 10MM-1.25, 10MM-1.50, 11MM-1.50, 12MM-1.50, 12MM-1.75; ⅛″ x 28 British Standard Pipe Thread.

Accessories include adjustable guide die stock for 1″ Hex dies, No. 4 tap and Reamer Wrench, two "T" handle tap wrenches for #0 through ¼″ taps, and 3MM through 6MM and ¼″ through ½″ and 6MM through 12MM. Metric screw pitch gauge, American Standard screw pitch gauge, and screw driver.

Packed in strong plastic case with individual compartments. Instruction booklet included.

CRAFTSMAN HIGH SPEED TAP & DIE SETS

METRIC

SEARS FINEST CRAFTSMAN® METRIC TAP AND DIE SET MADE OF HIGH SPEED STEEL FOR DURABILITY

9 52001

59 Piece Set (23 cutting sizes) Set includes 23 taps, 13 one inch Hex dies, 8 1-7/16" Hex dies, 2 Hex pipe dies. Sizes include one each Kromedge tap and 1" Hex die for Metric threads: 3MM-.60, 4MM-.70, 4MM-.75, 5MM-.80, 5MM-.90, 6MM-1.00, 7MM-1.00, 8MM-1.125, 9MM-1.00, 9MM-1.25 10MM-1.25, 10MM-1.50, 11MM-1.50, ⅛x28 British Standard Pipe Thread; one tap and 1-7/16" Hex die for: 12MM-1.50, 12MM-1.75, 14MM-1.25, 14MM-2.00, 16MM-1.50, 16MM-2.00, 18MM-1.50, 18MM-2.50, and ¼x19 British Standard Pipe Thread.

Screw extractors in sizes No. 1,2,3,4, and 5.

Accessories include 1" Hex adjustable guide die stock, 1-7/16" Hex adjustable guide die stock, "T" handle tap and reamer wrench for small taps, No. 4 adjustable tap wrench for taps 3MM through 12MM, No. 6 adjustable tap wrench for taps 6MM through 18MM, Metric screw pitch gauge, and screw driver. Set is packed in a high density polyethylene case. Instruction booklet included.

METRIC KROMEDGE® TAP & DIE SETS

METRIC

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SEARS FINEST CRAFTSMAN® KROMEDGE® METRIC TAP AND DIE SET

9 52096

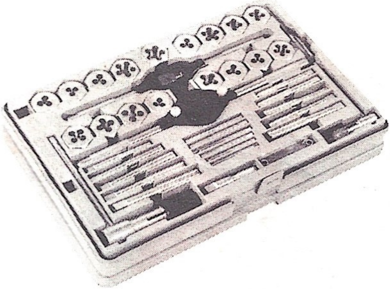
59 Piece Set (23 cutting sizes) Set includes 23 taps, 13 one inch Hex dies, 8 1-7/16" Hex dies, 2 Hex pipe dies. Sizes include one each Kromedge tap and 1" Hex die for Metric threads: 3MM-.60, 4MM-.70, 4MM-.75, 5MM-.80, 5MM-.90, 6MM-1.00, 7MM-1.00, 8MM-1.25, 9MM-1.00, 9MM-1.25, 10MM-1.25, 10MM-1.50, 11MM-1.50, 1/8x28 British Standard Pipe Thread; one tap and 1-7/16" Hex die for: 12MM-1.50, 12MM-1.75, 14MM-1.25, 14MM-2.00, 16MM-1.50, 16MM-2.00, 18MM-1.50, 18MM-2.50, and 1/4x19 British Standard Pipe Thread.

Screw extractors in sizes No. 1,2,3,4, and 5.

Accessories include 1" Hex adjustable guide die stock, 1-7/16" Hex adjustable guide die stock, "T" handle tap and reamer wrench for small taps, No. 4 adjustable tap wrench for taps 3MM through 12MM, No. 6 adjustable tap wrench for taps 6MM through 18MM, Metric screw pitch gauge, and screw driver. Set is packed in a high density polyethylene case. Instruction booklet included.

METRIC KROMEDGE® TAP & DIE SETS

METRIC



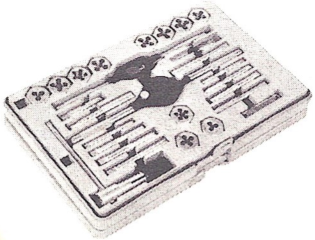
9 52095

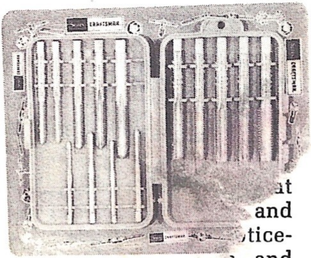
41 Piece Set (17 cutting sizes) The ideal set for repairing foreign autos, such as Volkswagens, Snowmobiles, and others. Sizes include one each Kromedge Tap and Die to cut 3MM-.50, 3MM-.60, 4MM-.70, 4MM-.75, 5MM-.80, 5MM-.90, 6MM-1.00, 7MM-1.00, 8MM-1.25, 9MM-1,00, 9MM-1.25, 10MM-1.25, 10MM-1.50, 11MM-1.50, 12MM-1.50, 12MM-1.75, and ⅛x28 British Standard Pipe Thread.

Accessories include adjustable guide die stock for 1" Hex dies, No. 4 tap and reamer wrench, two "T" handle tap wrenches for 6MM through 12MM and 3MM through 6MM taps, metric screw pitch gauge, and screw driver. Packed in strong plastic set box with individual compartments. Instruction booklet included.

METRIC KROMEDGE® TAP & DIE SETS

METRIC





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9 52093

28 Piece Set (11 cutting sizes)
Set includes 11 taps and 11 one inch Hex dies. Sizes include one each Kromedge tap and die to cut the following metric threads: 3MM-.60, 4MM-.70, 5MM-.80, 6MM-1.00, 7MM-1.00, 8MM-1.25, 9MM-1.25, 10MM-1.50, 12MM-1.50, 12MM-1.75, and 1/8x28 British Standard Pipe.

Accessories include adjustable guide die stock for 1" Hex dies, "T" handle tap and reamer wrench, screw pitch gauge and screw driver. Packed in strong plastic set box with individual compartments. Instruction booklet included.

9 52094 METRIC T

15 Piece Set (14 cutting em-
Set includes 14 Kromedge ng to cut the following Metric threads: 3MM-.50, 3MM-.60, 4MM-.70, 4MM-.75, 5MM-.80, 5MM-.90, 6MM-1.00, 7MM-1.00, 8MM-1.25, 9MM-1.00, 9MM-1.25, 10MM-1.00, 10MM-1.25, and 10MM-1.50.

Packaged in a convenient pocket size plastic case.

REFERENCE TABLES

DECIMAL EQUIVALENTS OF PARTS OF AN INCH

1/64	.015625	17/64	.265625	33/64	.515625	49/64	.765625
1/32	.03125	9/32	.28125	17/32	.53125	25/32	.78125
3/64	.046875	19/64	.296875	35/64	.546875	51/64	.796875
1/16	.0625	5/16	.3125	9/16	.5625	13/16	.8125
5/64	.078125	21/64	.328125	37/64	.578125	53/64	.828125
3/32	.09375	11/32	.34375	19/32	.59375	27/32	.84375
7/64	.109375	23/64	.359375	39/64	.609375	55/64	.859375
1/8	.125	3/8	.375	5/8	.625	7/8	.875
9/64	.140625	25/64	.390625	41/64	.640625	57/64	.890625
5/32	.15625	13/32	.40625	21/32	.65625	29/32	.90625
11/64	.171875	27/64	.421875	43/64	.671875	59/64	.921875
[illegible]	.1875	7/16	.4375	11/16	.6875	15/16	.9375
[illegible]	.203125	29/64	.453125	45/64	.703125	61/64	.953125
[illegible]	.21875	15/32	.46875	23/32	.71875	31/32	.96875
[illegible]	.234375	31/64	.484375	47/64	.734375	63/64	.984375
[illegible]	.25	1/2	.5	3/4	.75	1.	1.

IAL EQUIVALENTS OF NUMBER SIZE DRILLS

No.	Size of Drill in Inches	No.	Size of Drill in Inches	No.	Size of Drill in Inches	No.	Size of Drill in Inches
1	.2280	21	.1590	41	.0960	61	.0390
2	.2210	22	.1570	42	.0935	62	.0380
3	.2130	23	.1540	43	.0890	63	.0370
4	.2090	24	.1520	4.	.0860	64	.0360
5	.2055	25	.1490	45	.0820	65	.0350
6	.2040	26	.1470	46	.0810	66	.0330
7	.2010	27	.1440	47	.0785	67	.0320
8	.1990	28	.1405	48	.0760	68	.0310
9	.1960	29	.1360	49	.0730	69	.0292
10	.1935	30	.1285	50	.0700	70	.0280
11	.1910	31	.1200	51	.0670	71	.0260
12	.1890	32	.1160	52	.0635	72	.0250
13	.1850	33	.1130	53	.0595	73	.0240
14	.1820	34	.1110	54	.0550	74	.0225
15	.1800	35	.1100	55	.0520	75	.0210
16	.1770	36	.1065	56	.0465	76	.0200
17	.1730	37	.1040	57	.0430	77	.0180

DECIMAL EQUIVALENTS OF NUMBER SIZE DRILLS

No.	Size of Drill in Inches	No.	Size of Drill in Inches	No.	Size of Drill in Inches	No.	Size of Drill in Inches
18	.1695	38	.1015	58	.0420	78	.0160
19	.1660	39	.0995	59	.0410	79	.0145
20	.1610	40	.0980	60	.0400	80	0135

AMERICAN STANDARD AND METRIC TAP DRILL

Tap Size	Std.	Drill Size	Dec. Equiv.	Fractional Drill Size
4 x 40	NC	No. 43	.0890	3/32
6 x 32	NC	No. 36	.1065	7/64
8 x 32	NC	No. 29	.1360	9/64
10 x 32	NF	No. 21	.1590	5/32
10 x 24	NC	No. 25	.1495	5/32
12 x 24	NC	No. 16	.1770	11/64
1/4 x 20	NC	No. 7	.2010	13/64
1/4 x 28	NF	No. 3	.2130	7/32
5/16 x 18	NC	17/64	.2656	17/64
5/16 24	NF	17/64	.2656	17/64
3/8 x 24	NF	21/64	.3281	21/64
3/8 x 16	NC	5/16	.3125	5/16
1/8 Pipe		5/16	.3125	5/16
1/4 Pipe		7/16	.437	

Tap Size	Std.	F
7/16 x 20	NF	
7/16 x 14	NC	
1/2 x 13	NC	
1/2 x 20	NF	
9/16 x 12	NC	
9/16 x 18	NF	
5/8 x 11	NC	
5/8 x 18	NF	
11/16 x 11	NC	19/32
11/16 x 16	NF	5/8
3/4 x 10	NC	21/32
3/4 x 16	NF	11/1
7/8 x 9	NC	4
7/8 x 14	NF	13/
1" x 8	NC	7/
1" x 12	NF	59
1" x 14	NS	15

Tap Size	Drill Size	Dec. Equiv.	Nearest Fraction
3mm x .50mm	No. 39	.0995	3/32
3mm x .60mm	3/32	.0937	3/32
3.5mm x .50mm	No. 32	.116	1/8
4mm x .70mm	No. 30	.1285	1/8
4mm x .75mm	1/8	.125	1/8
4.5mm x .75mm	9/64	.141	9/64
5mm x .80mm	No. 19	.166	11/64
5mm x .90mm	No. 20	.161	5/32
6mm x 1.00mm	No. 9	.196	13/64
6.3mm x 1.00mm	No. 3	.213	7/32
7mm x 1.00mm	15/64	.234	15/64
8mm x 1.00mm	"J"	.277	9/32
8mm x 1.00mm	9/32	.281	9/32
8mm x 1.25mm	17/64	.265	17/64

Tap Size	Drill Size		
9mm x 1.00mm	5/16	[illegible]	[illegible]
9mm x 1.25mm	5/16	[illegible]	[illegible]
10mm x 1.00mm	23/64	[illegible]	[illegible]
10mm x 1.25mm	11/32	[illegible]	[illegible]
10mm x 1.50mm	"R"	[illegible]	[illegible]
11mm x 1.50mm	3/8	[illegible]	[illegible]
12mm x 1.50mm	13/32	[illegible]	[illegible]
12mm x 1.75mm	13/32	[illegible]	[illegible]
14mm x 1.25mm	3[illegible]/64	[illegible]	[illegible]
14mm x 2.00mm	15/32	.4	32
16mm x 1.50mm	37/64	.57	/64
16mm x 2.00mm	35/64	.656	35/64
18mm x 1.50mm	21/32	.6614	21/32
18mm x 2.50mm	39/64	.609	39/64
1/8-28 BSP	21/64	.3281	21/64

Sears CRAFTSMAN®

SEE MASTER SETS FEATURED ON PAGES 19 THROUGH 24

AMERICAN STANDARD AND METRIC CRAFTSMAN® QUALITY THREADING TOOLS

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01
Pc. Set
23 Threading
Sizes
3MM through
18MM

SEARS FINEST KROMEDGE® TAP AND DIE SETS MADE OF HIGHEST QUALITY TOOL STEEL FOR THE MACHINIST AND MASTER MECHANIC

9 52151
59 Pc. Set
23 Threading
Sizes
#6-32 through
¾″

9 52096
59 Pc. Set
23 Threading
Sizes
3MM through
18MM

COMPLETE WITH WRENCHES, THREAD GAUGES AND SCREW EXTRACTORS

Sold by SEARS, ROEBUCK AND CO., Chicago, IL 60684 U.S.A.

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